Don’t stop me now: HIV life expectancy and prevention in the modern antiretroviral era

Julia Marcus, PhD, MPH
October 16, 2023

Overview

Who Wants to Live Forever: stopping a fatal disease

A Kind of Magic: rendering people non-infectious

I Want to Break Free: giving people tools to protect themselves

Don’t Stop Me Now: what’s next for the field and you

My goal today

I want to convince you that:

1. People with HIV have near-normal life expectancy
2. People who are successfully treated cannot transmit HIV sexually
3. PrEP is a highly effective prevention tool, not a marker of “risk”

Underwriting decisions should not be based on HIV status or PrEP use

198–

"Unfortunately, there is no known cure for AIDS. Everyone who gets it dies. But AIDS can be prevented. By saying no to sex."

1987

"We have got to call a spade a spade, and a perverted human being a perverted human being."

– Jesse Helms

1987

1991

A CONDOM TO STOP UNSAFE POLITICS
JESSE HELMS IS DEADLIER THAN A VIRUS

“I actually saw one of the cops chuckling when he got out of his car. They didn’t know what to do at first. Shoot the thing?”

– Peter Staley

Who Wants to Live Forever: stopping a fatal disease

A Kind of Magic: rendering people non-infectious

I Want to Break Free: giving people tools to protect themselves

Don’t Stop Me Now: what’s next for the field and you

1996

From AIDS Conference, Talk of Life, Not Death

Savoring New but Costly Reasons for Hope

By DAVID W. DUNLAP

In San Francisco, as he picked up the newspaper each day last week, Armistead Maupin almost could not believe all the good news cascading south from the international AIDS conference in Vancouver, British Columbia.

In New York, Mario M. Cooper realized that he might be able to ratchet up the pace of his career again, having walked away from a high-pressure existence because he had the AIDS virus.

And in Washington, David M. Smith began considering his employer's tax-deferred savings plan, as it dawned on him that he might actually reach retirement age.

"It's the first time I've started thinking, 'Gosh, maybe I'll make it to being an old person,'" said Mr. Smith, who is 36 and has known since 1987 that he was infected with the human immunodeficiency virus, which causes AIDS. "This is the first spark of energy I've felt."

That spark came from the steady stream of reports out of Vancouver showing that H.I.V. could be reduced through a combination of antiviral drugs, including the new type known as protease inhibitors.

But it is not only the medical landscape of AIDS that is changing. The Vancouver conference seemed to certify a profound transformation in the social nature of the epidemic, a shift that started six months ago when the first protease inhibitors reached the market.

People who had been planning to die sooner rather than later — quitting their jobs, cashing in their insurance policies, running their credit cards to the limit, avoiding fresh romances or clinging to old relationships — began finding themselves back in the business of living, with all its complications.

Patients in the last stages of the AIDS — or friends and family members who recently lost someone to the disease — began facing a prospect not unlike that of besieged villagers in wartime, struggling to survive behind enemy lines with the liberators' artillery in earshot.

And many of those at risk for H.I.V. began balancing two critical and apparently conflicting messages: that their sexual conduct was still a life-and-death matter but that AIDS was becoming a manageable,

Monica Almeida/The New York Times

Mario M. Cooper said the Vancouver meeting gave him hope for a change in his professional path.

Associated Press for The New York Times

The conference made David M. Smith start thinking that "maybe I'll make it to being an old person."

tional Committee.

After the good news from Vancouver, Mr. Cooper said he was thinking about changing professional directions again "to accommodate what may be an extended life."

As difficult as it was to believe, the

"It's the first time I've started thinking, ***Gosh, maybe I'll make it to being an old person***. This is the first spark of energy I've felt."

– David M. Smith, 36

Studies still showed a survival gap by HIV status

- ART extended the lifespan of PWH, with over half aged 50+ by 2015
- However, studies showed that PWH had not yet reached a normal life expectancy
- Prior studies compared PWH to the general population, with limited ability to account for differences by HIV status
  - Sociodemographic factors and access to care
  - Risk factors that affect survival

Effros et al., *CID* 2008; Samji et al., *PLOS ONE* 2013; ART Cohort Collaboration, *Lancet* 2008; Lohse et al., *Annals Intern Med* 2007; Patterson et al., *BMC Infect Dis* 2015; Harrison et al., *JAIDS* 2010; May et al., *BMJ* 2011; Wada et al., *Am J Epidemiol* 2013

HIV life expectancy in the modern ART era

Narrowing the Gap in Life Expectancy Between HIV-Infected and HIV-Uninfected Individuals With Access to Care

Julia L. Marcus, PhD, MPH, Chun R. Chao, PhD,† Wendy A. Leyden, MPH,* Lanfang Xu, MS,† Charles P. Quesenberry, Jr, PhD,* Daniel B. Klein, MD,‡ William J. Towner, MD,§ Michael A. Horberg, MD, MAS,|| and Michael J. Silverberg, PhD, MPH**

J Acquir Immune Defic Syndr • Volume 73, Number 1, September 1, 2016

JAMA Network Open

Original Investigation | Infectious Diseases

Comparison of Overall and Comorbidity-Free Life Expectancy Between Insured Adults With and Without HIV Infection, 2000-2016

Julia L. Marcus, PhD, MPH; Wendy A. Leyden, MPH; Stacey E. Alexeeff, PhD; Alexandra N. Anderson, MPH; Rulin C. Hechter, PhD; Haihong Hu, MPH; Jennifer O. Lam, PhD; William J. Towner, MD; Qing Yuan, MPH; Michael A. Horberg, MD; Michael J. Silverberg, PhD

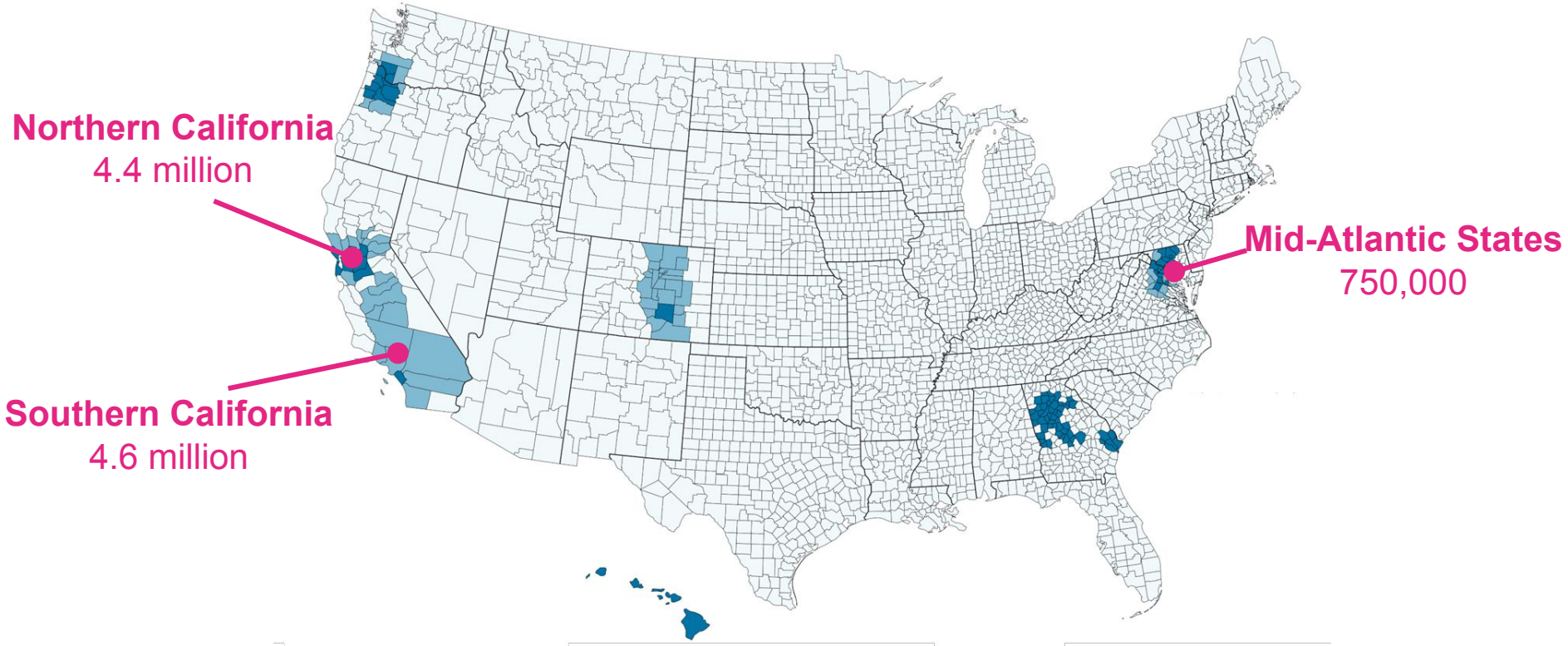
Marcus et al., *JAIDS* 2016; Marcus et al., *JAMA Network Open* 2020

Study objectives

1. To quantify the gap in life expectancy between people with and without HIV from within the same healthcare system

2. To identify factors that contribute to any remaining gap

Study setting: Kaiser Permanente



Study design

- Cohort study of members aged ≥20 during 1996-2016
- Frequency-matched PWH to people without HIV 1:10 on age, sex, race and ethnicity, medical center, and year of study follow-up
- Sociodemographic and clinical data from EHR and KP registries
- Additional death data from state death certificates, Social Security

Data analysis

- Directly age-adjusted mortality rates
  - 10-year age groups from 20 to 70+
  - HIV- group in 2011 as standard population

- Abridged life tables to estimate the expected years of life remaining at age 20
  - Age-specific mortality rates for 5-year age groups from 20 to 85+
  - Applied to hypothetical HIV+ and HIV- cohorts
  - Z-tests to compare estimates

Life expectancy estimates for HIV+ and HIV-

1. **Trends over time:** by year of study follow-up
2. **Disparities:** by gender, race and ethnicity, and HIV transmission route
3. **Effect of early treatment:** by CD4 count at ART initiation
4. **Factors contributing to any remaining gap:** hepatitis B or C, drug or alcohol abuse disorders, smoking

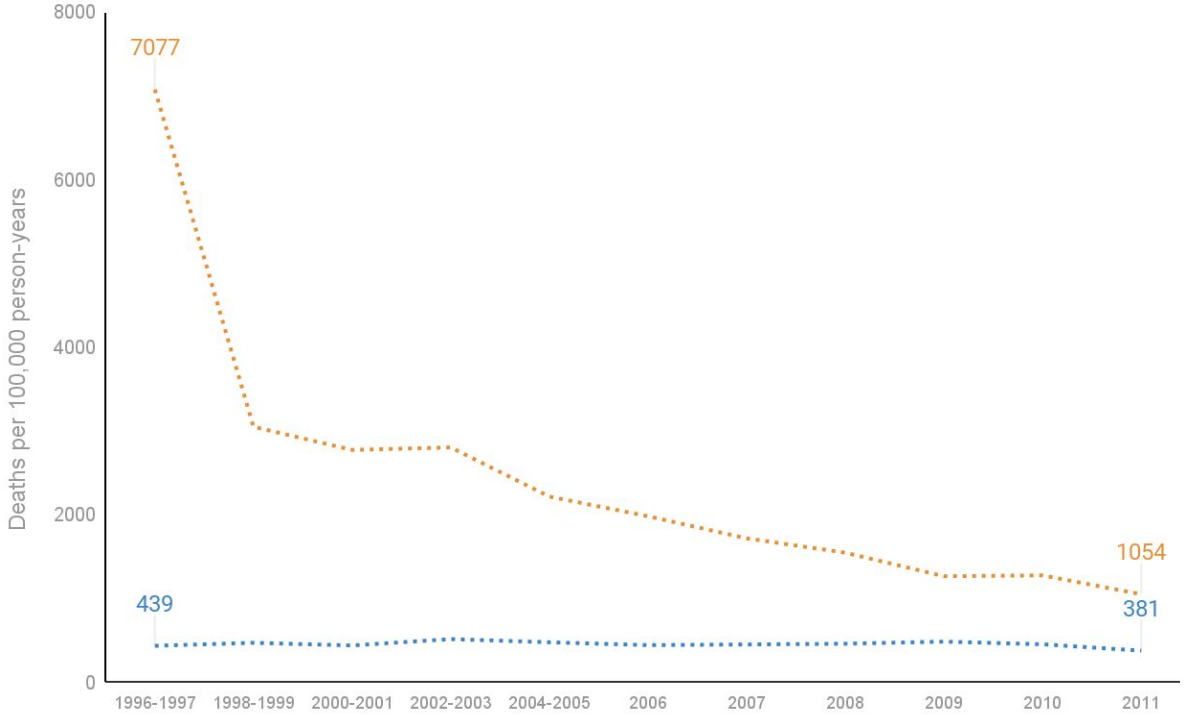
Cohort characteristics, 1996-2011

	HIV+	HIV-
N	24,768	257,600
Mean age, years	41	40
Men, %	91	91
Race and ethnicity, % among known Non-Hispanic White Non-Hispanic Black Hispanic/Latinx Other race or ethnicity	 56 21 18 5	 44 27 10 18
Ever hepatitis B or C, %	12	2
Ever drug/alcohol abuse disorders, %	21	9
Ever smoking, %	45	31

HIV-specific characteristics, 1996-2011

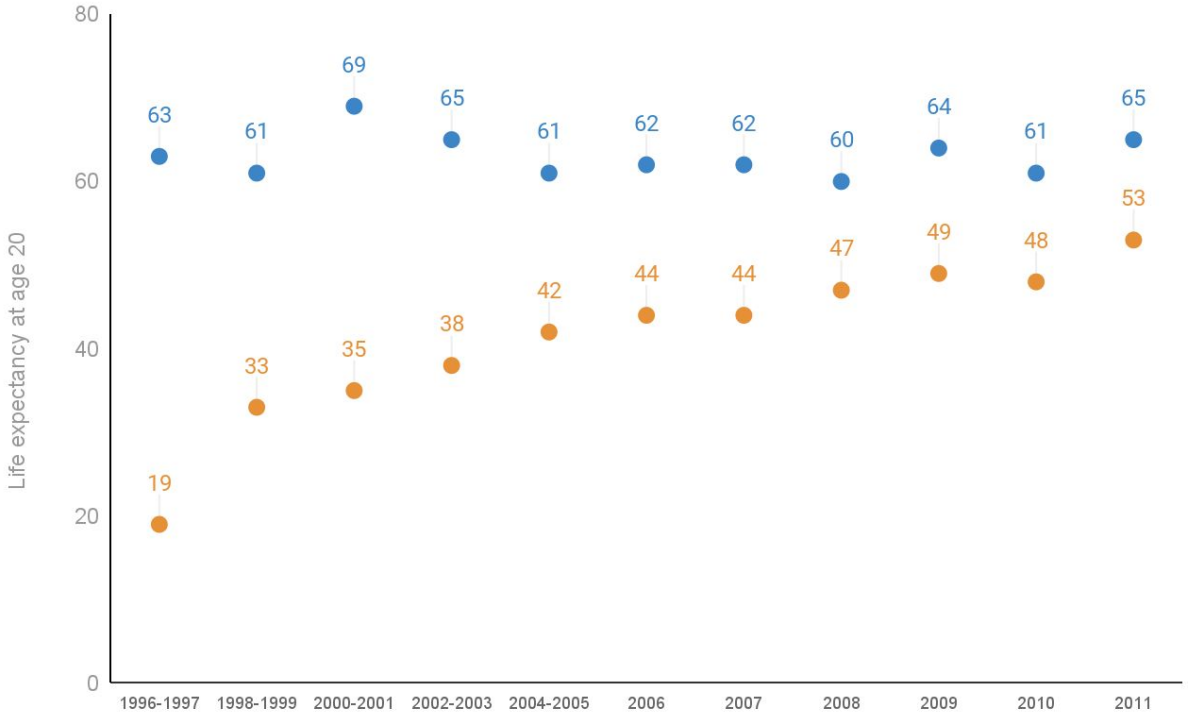
	HIV+
N	24,768
HIV transmission route, % among known Men who have sex with men Heterosexuals People who inject drugs Other	 75 16 7 2
Prior ART use before baseline, %	46
Initiated ART during follow-up, %	40
CD4 count at ART initiation, % <200 200-349 350-499 ≥500	 35 27 21 18

Mortality rates plummeted for people with HIV compared with people without HIV, 1996-2011



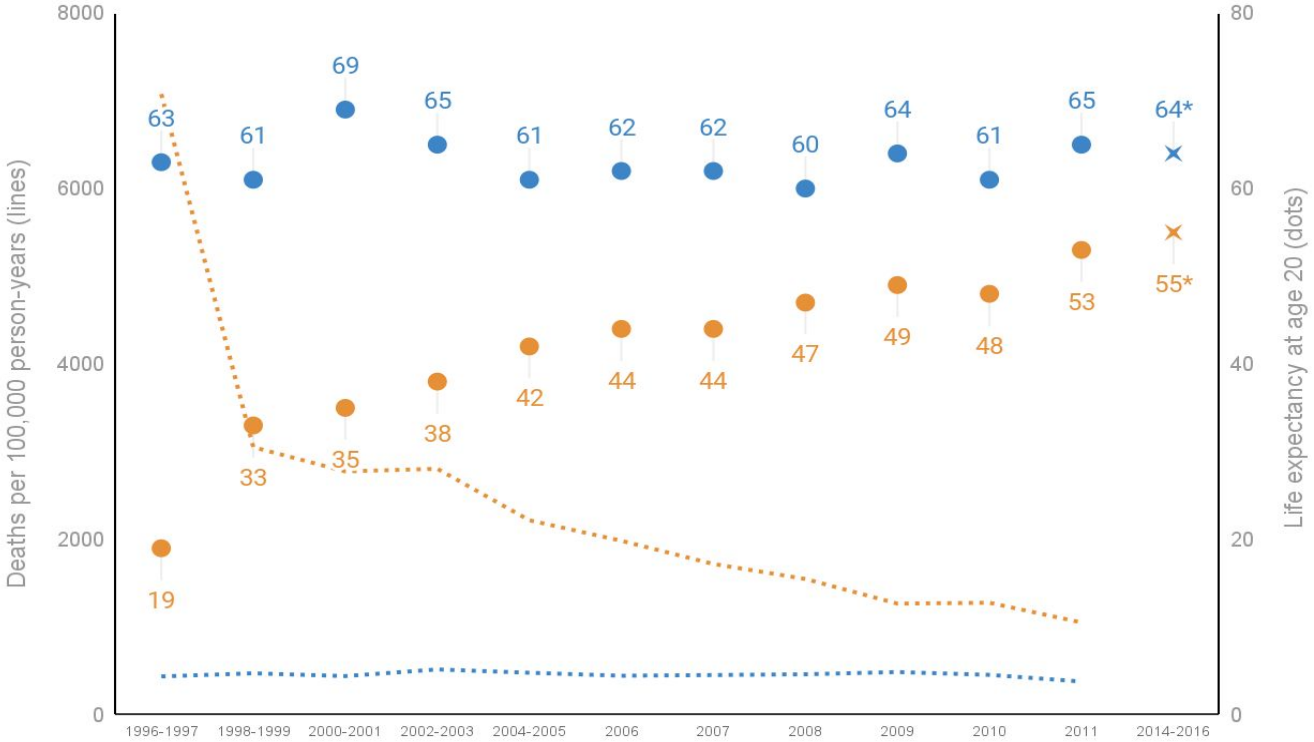
Marcus et al., *JAIDS* 2016

Life expectancy at age 20 soared for people with HIV compared with people without HIV, 1996-2011



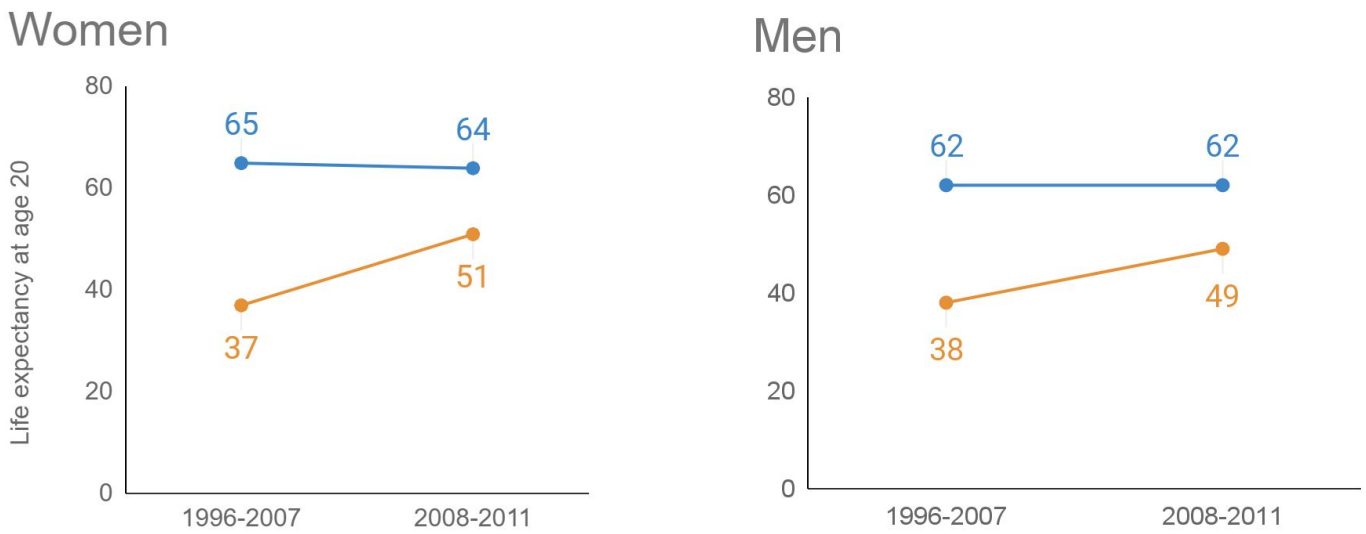
Marcus et al., *JAIDS* 2016

Gap in life expectancy between HIV+ and HIV– narrowed further in 2014-2016



Marcus et al., *JAIDS* 2016; *Extrapolated from life expectancy at age 21 in Marcus et al., *JAMA Network Open* 2020

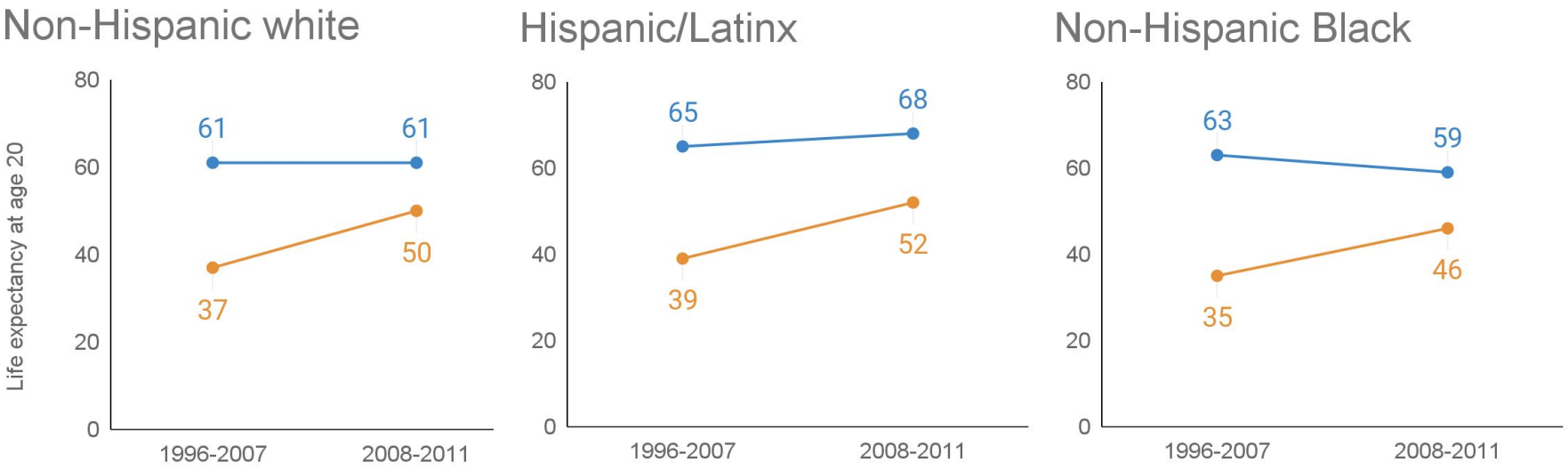
Life expectancy at age 20 for HIV+ and HIV– *By gender*



HIV+ women and men reached similar life expectancies (*P*=0.20)

Marcus et al., *JAIDS* 2016

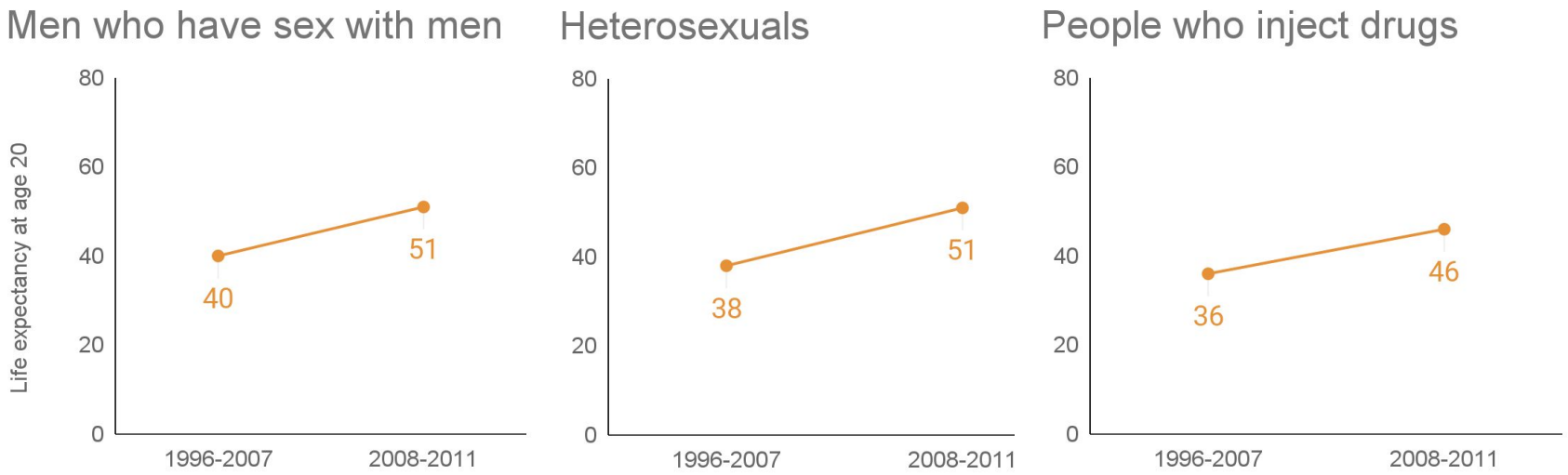
Life expectancy at age 20 for HIV+ and HIV–
By race and ethnicity



Among PWH, white and Hispanic people reached higher life expectancies than Black people (*P*=0.007 and *P*=0.001)

Marcus et al., *JAIDS* 2016

Life expectancy at age 20 for HIV+
By HIV transmission route



MSM and heterosexuals reached higher life expectancies than PWID (*P*=0.004 and *P*=0.011)

Marcus et al., *JAIDS* 2016

Factors contributing to remaining gap among people with HIV who started ART early

Expected years of life remaining at age 20 (95% CI), 2008-2011			
	HIV+ and initiated ART with CD4 ≥500	HIV-	Difference
Overall	54.5	62.3	**7.9*** (5.1–10.6)
No hepatitis B or C	55.4	62.6	**7.2** (5.5–10.0)
No drug/alcohol abuse disorders	57.2	63.8	**6.6** (3.9–9.3)
No smoking	58.9	64.3	**5.4** (2.2–8.7)
None of the above	59.2	65.0	**5.7** (2.4–9.0)

Marcus et al., *JAIDS* 2016; *Difference was 6.8 years in 2011-2016, from Marcus et al., *JAMA Network Open* 2020

Have recent improvements in ART further extended life expectancy?

Improved efficacy

Improved tolerability

Earlier initiation

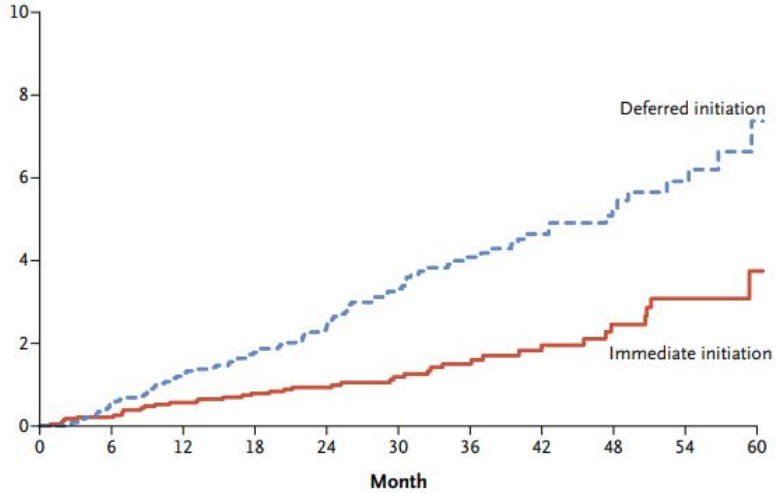
RCT evidence of reduced morbidity and mortality with early ART initiation

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 AUGUST 27, 2015 VOL. 373 NO. 9

Initiation of Antiretroviral Therapy in Early Asymptomatic HIV Infection

The INSIGHT START Study Group*



67% reduction in primary endpoint with immediate vs. deferred initiation

Lundgren et al., *NEJM* 2015

Today, life expectancy is near-normal for PWH on ART with high CD4 counts

THE LANCET
HIV

Life expectancy after 2015 of adults with HIV on long-term antiretroviral therapy in Europe and North America: a collaborative analysis of cohort studies

Adam Trickey, Caroline A Sabin, Greer Burkholder, Heidi Crane, Antonella d'Arminio Monforte, Matthias Egger, M John Gill, Sophie Grabar, Jodie L Guest, Inma Jarrin, Fiona C Lampe, Niels Obel, Juliana M Reyes, Christoph Stephan, Timothy R Sterling, Ramon Teira, Giota Touloumi, Jan-Christian Wasmuth, Ferdinand Wit, Linda Wittkop, Robert Zangerle, Michael J Silverberg, Amy Justice, Jonathan A C Sterne

Gap in life expectancy for PWH who started ART since 2015 and had CD4 ≥500:

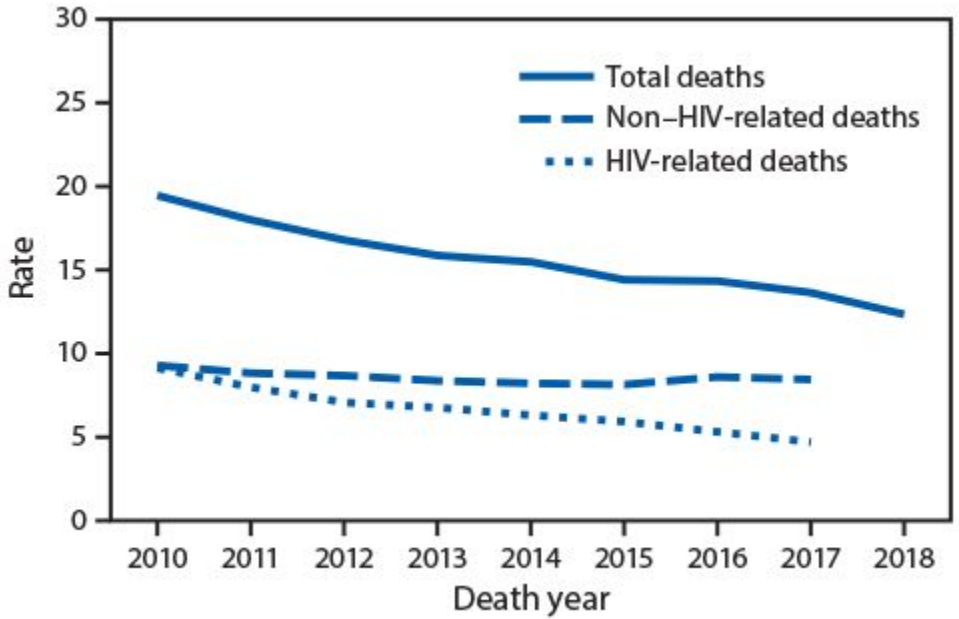
Women: **3.8–5.6 years**

Men: **1.5–2.7 years**

Trickey et al., *Lancet HIV* 2023

Longer-acting antiretroviral therapy could further improve life expectancy for PWH

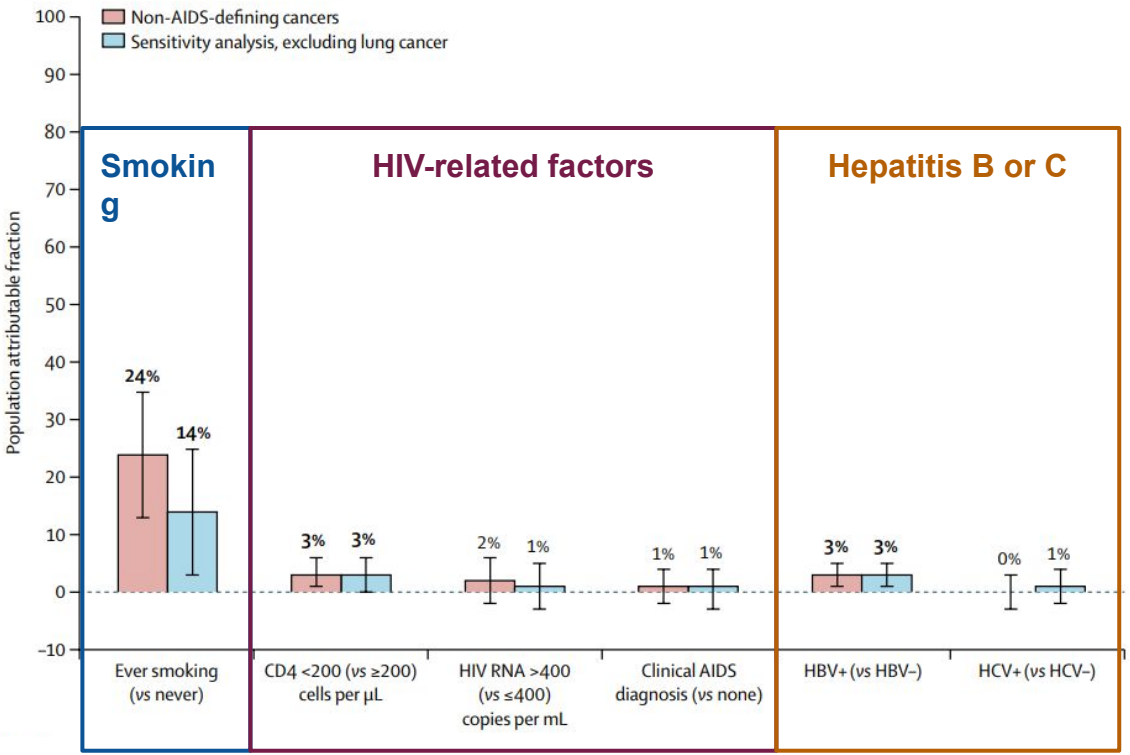
Declining death rates are attributable to declines in HIV-related deaths



Leading causes of death for PWH are now **cancer** and **cardiovascular disease**, similar to people without HIV

Bosh et al., *MMWR Morb Mortal Wkly Rep* 2020

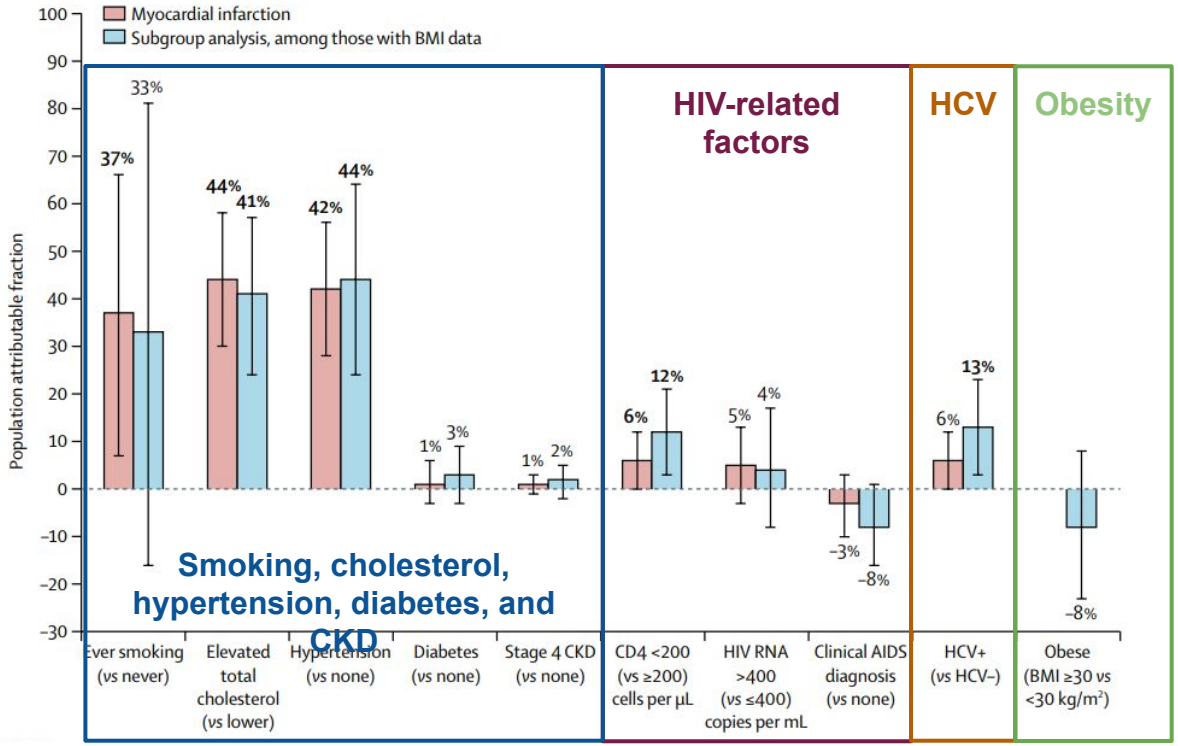
Risk factors for cancer among PWH are similar to people without HIV



Althoff et al., *Lancet HIV* 2019

Main risk factor for cancer among PWH is **smoking**, not HIV-related factors

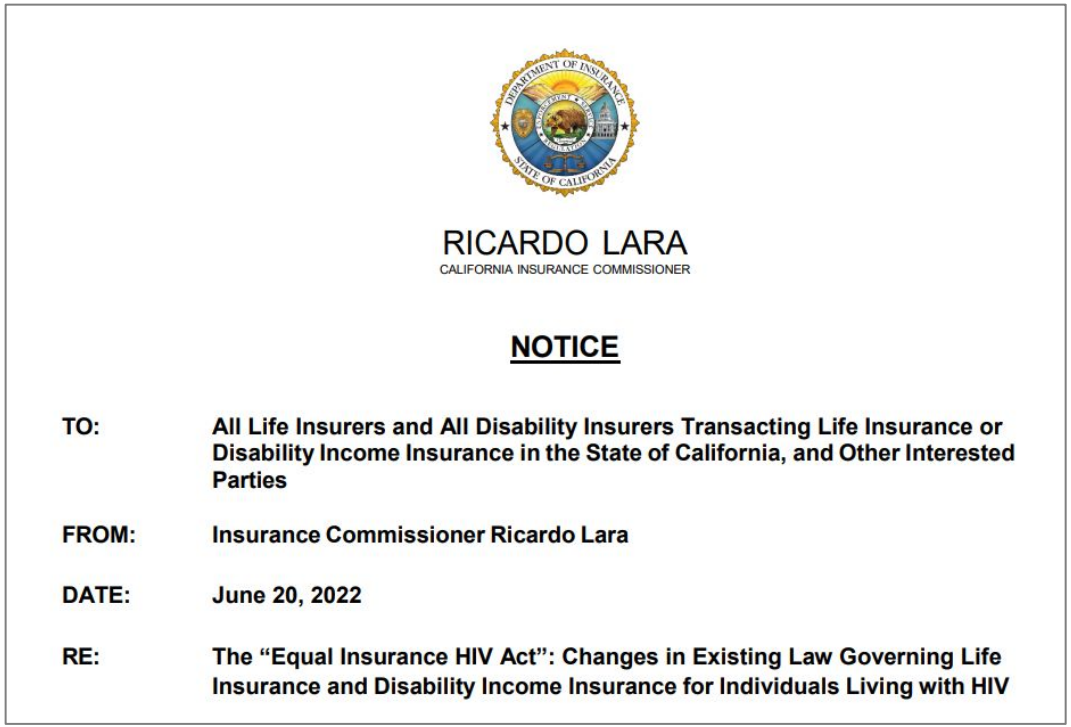
Risk factors for heart attack among PWH are similar to people without HIV



Main risk factors for heart attack among PWH are **smoking**, **cholesterol**, and **hypertension**, not HIV-related factors

Althoff et al., *Lancet HIV* 2019

Insurance coverage for PWH should be similar to people without HIV



RICARDO LARA
CALIFORNIA INSURANCE COMMISSIONER

NOTICE

TO: All Life Insurers and All Disability Insurers Transacting Life Insurance or Disability Income Insurance in the State of California, and Other Interested Parties

FROM: Insurance Commissioner Ricardo Lara

DATE: June 20, 2022

RE: The "Equal Insurance HIV Act": Changes in Existing Law Governing Life Insurance and Disability Income Insurance for Individuals Living with HIV

"Research shows that in recent years, people living with HIV who are receiving treatment have a life expectancy of approximately 70 to 78 years or more, depending on other determinants of health and how early treatment was commenced, compared to a life expectancy of 39 years in 1996."

Pioneering insurance coverage for PWH

2003

***Lancet* study of Swiss cohort shows mortality for treated PWH similar to treated cancer**

2008

Swiss Re promotes guidance on life insurance coverage for PWH

2015

Some direct insurers begin to accept PWH

e.g., Northwestern Mutual, MetLife, John Hancock, Prudential

2023

Many insurers still declining life insurance solely based on HIV status outside of CA

Key points
Stopping a fatal disease

- PWH starting ART early have **similar life expectancy** to those without HIV
- PWH have **similar causes of death** to those without HIV
- PWH have **similar risk factors** to those without HIV
- PWH should have **similar insurance coverage** to people without HIV

Overview

Who Wants to Live Forever: stopping a fatal disease

A Kind of Magic: rendering people non-infectious

I Want to Break Free: giving people tools to protect themselves

Don’t Stop Me Now: what’s next for the field and you

PWH with durable viral suppression cannot transmit HIV sexually

Original Investigation

July 12, 2016

Sexual Activity Without Condoms and Risk of HIV Transmission in Serodifferent Couples When the HIV-Positive Partner Is Using Suppressive Antiretroviral Therapy

Alison J. Rodger, MD[1]; Valentina Cambiano, PhD[1]; Tina Bruun, RN[2]; et al

Risk of HIV transmission through condomless sex in serodifferent gay couples with the HIV-positive partner taking suppressive antiretroviral therapy (PARTNER): final results of a multicentre, prospective, observational study

*Alison J Rodger, Valentina Cambiano, Tina Bruun, Pietro Vernazza, Simon Collins, Olaf Degen, Giulio Maria Corbelli, Vicente Estrada, Anna Maria Geretti, Apostolos Beloukas, Dorthe Raben, Pep Coll, Andrea Antinori, Nneka Nwokolo, Armin Rieger, Jan M Prins, Anders Blaxhult, Rainer Weber, Arne Van Eeden, Norbert H Brockmeyer, Amanda Clarke, Jorge del Romero Guerrero, Francois Raffi, Johannes R Bogner, Gilles Wandeler, Jan Gerstoft, Felix Gutiérrez, Kees Brinkman, Maria Kitchen, Lars Ostergaard, Agathe Leon, Matti Ristola, Heiko Jessen, Hans-Jürgen Stellbrink, Andrew N Phillips, Jens Lundgren, for the PARTNER Study Group**

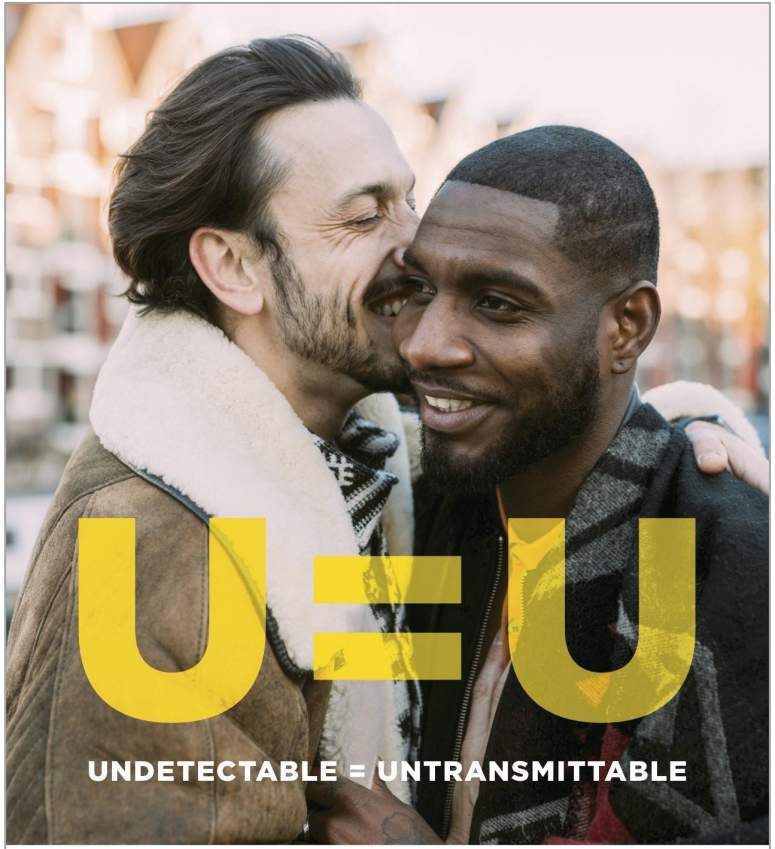
36,000 condomless sex acts among heterosexuals

22,000 condomless sex acts among men who have sex with men

76,000 condomless sex acts among men who have sex with men

0 linked HIV transmissions

Rodger et al., *JAMA* 2016; Rodger et al., *Lancet* 2019



FENWAY HEALTH

If you're undetectable, you can't transmit HIV through sex. Fenway Health is proud to be a community partner of the **U=U Prevention Access Campaign.** (preventionaccess.org/faq)

MG-101

What it means to no longer be infectious

https://napwha.org.au/positive/uu-serodiscordant-relationship/

"Personally, U=U has lifted my own internalized fears of transmitting the virus, giving me the **freedom** to enjoy sex, tell people my status (if I choose to) with more confidence than I ever had before."

– Sarah, HIV advocate

Key points
Rendering people non-infectious

- PWH with durable viral suppression **cannot transmit** HIV sexually
- This is known as **U=U**, or undetectable=untransmittable
- U=U has improved **quality of life** for PWH and their partners
- Antiretroviral treatment is doubly important because **it is also prevention**

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This pill is changing HIV prevention
PrEP
Take it once a day
to stay HIV negative
FACE 2 FACE
ending HIV in Sonoma County

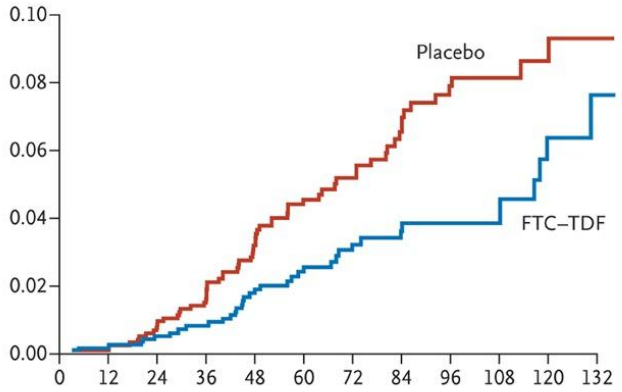
Promise of PrEP in clinical trials

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 DECEMBER 30, 2010 VOL. 363 NO. 27

Preexposure Chemoprophylaxis for HIV Prevention in Men Who Have Sex with Men

Robert M. Grant, M.D., M.P.H., Javier R. Lama, M.D., M.P.H., Peter L. Anderson, Pharm.D., Vanessa McMahan, B.S., Albert Y. Liu, M.D., M.P.H., Lorena Vargas, Pedro Goicochea, M.Sc., Martín Casapía, M.D., M.P.H., Juan Vicente Guanira-Carranza, M.D., M.P.H., Maria E. Ramirez-Cardich, M.D., Orlando Montoya-Herrera, M.Sc., Telmo Fernández, M.D., Valdilea G. Veloso, M.D., Ph.D., Susan P. Buchbinder, M.D., Suwat Chariyalertsak, M.D., Dr.P.H., Mauro Schechter, M.D., Ph.D., Linda-Gail Bekker, M.B., Ch.B., Ph.D., Kenneth H. Mayer, M.D., Esper Georges Kallás, M.D., Ph.D., K. Rivet Amico, Ph.D., Kathleen Mulligan, Ph.D., Lane R. Bushman, B.Chem., Robert J. Hance, A.A., Carmela Ganoza, M.D., Patricia Defechereux, Ph.D., Brian Postle, B.S., Furong Wang, M.D., J. Jeff McConnell, M.A., Jia-Hua Zheng, Ph.D., Jeanny Lee, B.S., James F. Rooney, M.D., Howard S. Jaffe, M.D., Ana I. Martinez, R.Ph., David N. Burns, M.D., M.P.H., and David V. Glidden, Ph.D., for the iPrEx Study Team*



Daily PrEP vs. placebo: 44% efficacy in preventing HIV acquisition

Initial skepticism about PrEP in the real world

THE NEW YORKER

NEWS CULTURE BOOKS SCIENCE & TECH BUSINESS HUMOR CARTOONS MAGAZINE AUDIO

SEPTEMBER 30, 2013

WHY IS NO ONE ON THE FIRST TREATMENT TO PREVENT H.I.V.?

BY CHRISTOPHER GLAZEK

PrEP worked even better in clinical practice

The New York Times

Insurer Says Clients on Daily Pill Have Stayed H.I.V.-Free

A Truvada PrEP prescription, filled in July in New York City. New data points to the efficacy of this daily preventive pill. Nicole Bengiveno/The New York Times

"This shows that the **effectiveness of PrEP is really strikingly high**. And this study takes it out of the realm of clinical trials and into the real world."

– Tony Fauci

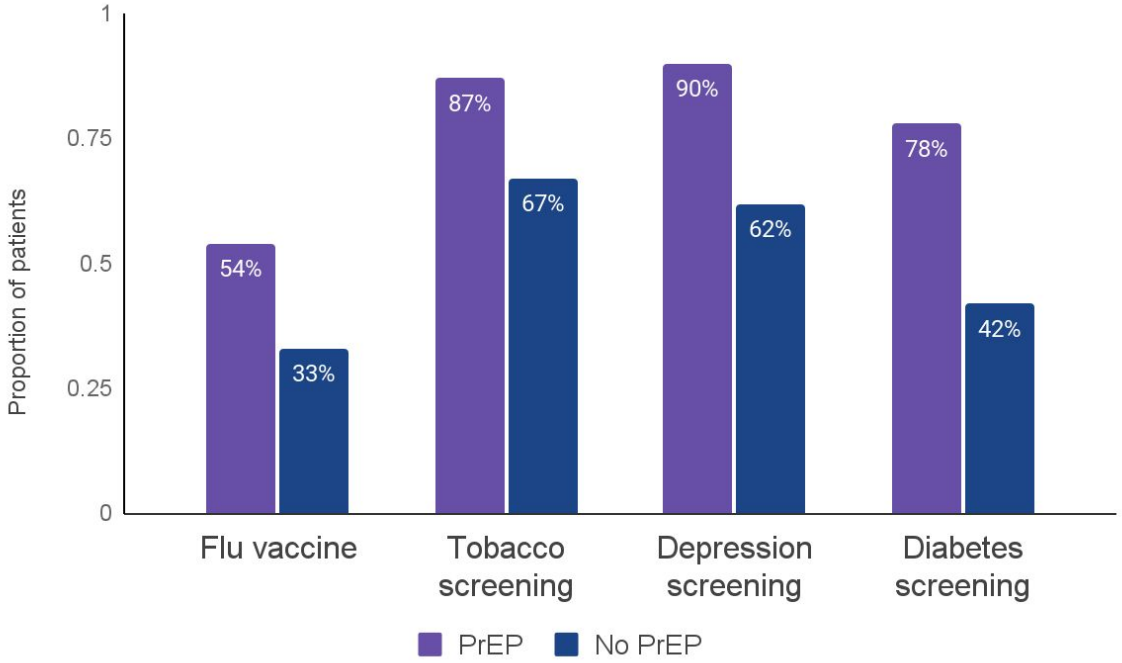
Volk, Marcus, et al., *CID* 2015; Marcus et al., *JAIDS* 2016; Marcus et al., *CID* 2017; Hojilla, Hurley, Marcus, et al., *JAMA Netw Open* 2021

PrEP is far more effective than condoms

Population	Condom effectiveness	PrEP effectiveness
Men who have sex with men, receptive anal sex	**72-91%** Smith et al., 2015 Johnson et al., 2018	**~99%** Grant et al., 2014 Liu et al., 2015 McCormack et al., 2015 Volk, Marcus, et al., 2015 Marcus et al., 2017
Men who have sex with men, insertive anal sex	**63%** Smith et al., 2015	
Heterosexual men and women	**80%** Weller et al., 2002	**~99%** Baeten, 2012

CDC, Effectiveness of Prevention Strategies to Reduce the Risk of Acquiring or Transmitting HIV, 2022; estimates based on optimal use

PrEP is a gateway to other preventive care



At a Boston community health center, patients receiving PrEP were more likely to receive other routine preventive care services

Marcus et al., *AJPH* 2018

PrEP users are proactively caring for their health

Themes from interviews with 25 MSM

- Accessing PrEP motivated initial and ongoing engagement in care
- Provider awareness and attitudes about PrEP influenced engagement in care
- PrEP empowered users to engage with other aspects of their health

"…I **didn't really have a primary care provider until I got PrEP** so... [PrEP] was like my avenue or access route to seeing like a doctor regularly."

– MSM participant, age 30

Sewell… Marcus, *JAIDS* 2021

Biomedical prevention is more than prevention

NATIONAL

How The Approval Of The Birth Control Pill 60 Years Ago Helped Change Lives

May 9, 2020 · 7:59 AM ET

Heard on Weekend Edition Saturday

Sarah McCammon

"We lived in constant fear, I mean all of us. It was like a tightrope, always wondering, is this going to be the time [I get pregnant]?... It was just like going from night to day, as far as the freedom of it. And to know **that I had control, that I had choice, that I controlled my body**. It gave me a whole new lease on life."

– Carole Cato, age 78

Benefits of PrEP extend beyond HIV prevention

↑ health care engagement
↓ anxiety
↓ worry about HIV
↑ autonomy
↑ relationships with PWH
↑ intimacy and pleasure
↑ sexual satisfaction

"What I didn't realize was the psychological impact this drug was going to give me. And I don't mean chemically, but I mean that what it began to allow me to do was to begin to just unpack 20 years of trauma over the AIDS crisis, **to start to experience for the first time in my life, in my 40s, what it's like to experience sexual connection without fear**…. it's just fabulous, and celebratory. And I felt like that gave me some agency in other parts of my life." – MSM participant

Marcus et al., *AJPH* 2018; Marcus et al., *STD* 2021; Sewell,… Marcus et al., *JAIDS* 2021; Keen et al., *JAIDS* 2020; Gagliano et al., *AIDS Educ Prev* 2021; Devarajan et al., *AIDS Care* 2020; Quinn et al., *AIDS Behav* 2020; Gallagher and Updegraff, *Ann Behav Med* 2012; Price, English, and Golub, *Health Psychol* 2022

Concerns about “risk compensation” in public health

Bleakley et al., *Am J Prev Med* 2018; Esmaeilikia et al., *Transp Res F: Traffic Psychol Behav* 2019; Kasting et al., *Hum Vaccin Immunother* 2016; Beletsky et al., *J Urban Health* 2007

Freedom is the whole point of prevention tools

The Atlantic

IDEAS

Vaccinated People Are Going to Hug Each Other

The vaccines are phenomenal. Belaboring their imperfections—and telling people who receive them never to let down their guard—carries its own risks.

By Julia Marcus

"Advising people that they must do nothing differently after vaccination—not even in the privacy of their homes—creates the misimpression that vaccines offer little benefit at all. Vaccines provide a **true reduction of risk, not a false sense of security.**"

Controversy around initial PrEP approval

FDA Panel Recommends Anti-HIV Drug for Prevention

SILVER SPRING, MARYLAND—On 10 May, the Antiviral Drugs Advisory Committee of the U.S. Food and Drug Administration (FDA) held a marathon debate about whether an anti-HIV drug on the market as a treatment should receive approval as a preventive for uninfected people. For more than 12 hours, the committee heard scientific evidence and impassioned arguments for and against, ultimately recommending that FDA approve the use of the drug Truvada for what's called pre-exposure prophylaxis (PrEP). The decision was not unanimous, and there was a protracted back and forth about how to reduce the possibility that PrEP might cause more harm than good. By the time the committee chair asked whether the 22 members were ready to vote—which took place after the scheduled 6:30 p.m. adjournment—one person in the audience said, "Amen!"

There's little question that Truvada, made by Gilead Sciences Inc. in Foster City, California, can prevent sexual transmission of HIV: Large, controlled studies in both uninfected men who have sex with men (MSM) and uninfected heterosexuals who have long-term partners known to be infected have proved that the drug reduces risk by more than 90% when taken daily. But adherence is the rub. Many of the participants in clinical trials of PrEP, shared by advocates and opponents alike, is that it will lead to "risk compensation"—in other words, people will assume the pill protects them and abandon other proven prevention strategies like condom use. A small PrEP study Buchbinder participated in extensively evaluated risk compensation and found that none occurred. Similarly, none of the large-scale PrEP studies found increases in risky behavior, she said, noting that other fields assess risk compensation differently. "We're not asking whether people who are on statins are eating more ice cream," said Buchbinder, who supports Gilead's request for a label change to indicate that Truvada can be prescribed either to treat or prevent infections.

Minor discord. Michael Weinstein of the AIDS Healthcare Foundation led a small but vocal campaign against the approval of Truvada as a preventive.

by itself to prevent an HIV infection, as a treatment, it must be used with other drugs to avoid the emergence of resistant strains. The challenge with PrEP, then, is making sure that people use Truvada as a solo drug only if they are not infected—otherwise, resistant strains could run rampant and render the drug useless as both a treatment and a preventive.

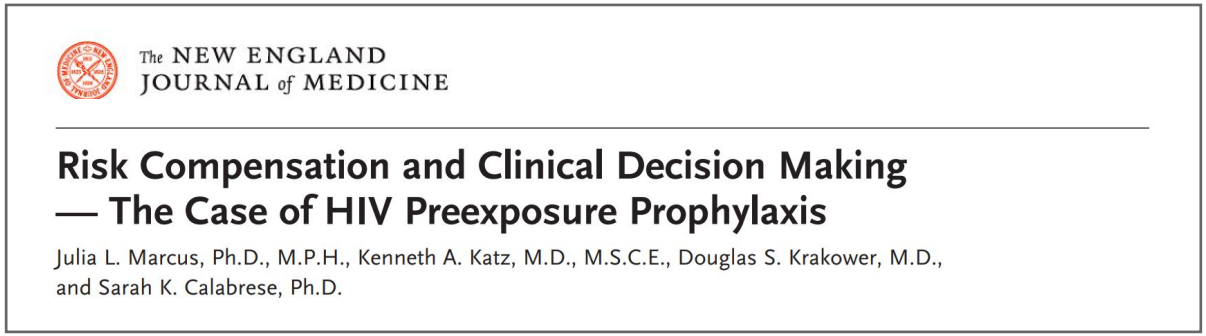
If FDA approves the label change, Gilead explained in a "risk mitigation" plan how it would educate providers about the importance of prescribing PrEP only to patients who test HIV negative. But making sure only uninfected people use PrEP is easier said than done.

In clinical trials of PrEP, few cases of drug resistance were seen in the thousands of study participants. But researchers checked for infection each month and also ran sensitive PCR assays that can detect HIV in the first few weeks after infection, which is missed on standard antibody tests. In the real world, who would oversee repeated tests of people prescribed PrEP? Would retesting be required for refills? It is possible to restrict access to drugs—women receiving the acne medication Accutane must receive pregnancy tests before each prescription is filled—but as several committee mem-

"If something comes along that's better than condoms, I'm all for it, but Truvada is not that. Let's be honest: It's a **party drug.**"

– Michael Weinstein, AIDS Healthcare Foundation

Risk compensation concerns are rooted in bias



- Providers are less willing to prescribe PrEP to patients who report condomless sex, who are most in need of PrEP
- Providers have biases about acceptable reasons to discontinue condom use on PrEP (✔conception; ✖ pleasure, intimacy, sexual functioning)
- Providers expect risk compensation more often in Black MSM than white MSM

Marcus, Katz, Krakower, and Calabrese, *NEJM* 2019; Calabrese et al., *JIAS* 2018; Edelman et al., *AIDS Behav* 2017; Calabrese et al., *AIDS Behav* 2021

Denying PrEP users insurance is like punishing people who wear seatbelts

"Long-term disability insurance could offer some peace of mind…. I chatted with an insurance broker, who scanned providers nationwide, and reported back to me that because I took PrEP daily, **most insurers wouldn't allow me to participate in their program.**"

– Charles Orgbon III, 2022

https://www.sfaf.org/collections/beta/the-infuriating-experience-of-prep-discrimination/

Using data on PrEP use to inform underwriting may be unsustainable

The New York Times

F.D.A. Approves First U.S. Over-the-Counter Birth Control Pill

The move could significantly expand access to contraception. The pill is expected to be available in early 2024.

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Perspective

AUGUST 10, 2023

Free the PrEP — Over-the-Counter Access to HIV Preexposure Prophylaxis

Douglas Krakower, M.D., and Julia L. Marcus, Ph.D.

Key points
Giving people tools to protect themselves

- PrEP is at least **99% effective** in preventing HIV acquisition
- This medication has had a profound impact on **quality of life** for users
- **Stigma** has led to counterproductive prescribing and policy
- PrEP use is an indicator of **proactive prevention**, not a proxy for risk

Overview

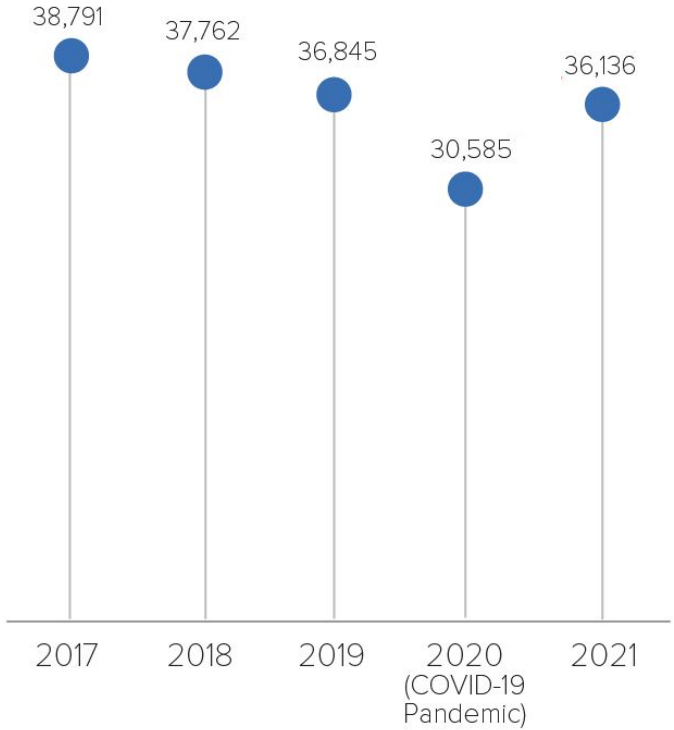
Who Wants to Live Forever: stopping a fatal disease

A Kind of Magic: rendering people non-infectious

I Want to Break Free: giving people tools to protect themselves

Don’t Stop Me Now: what’s next for the field and you

Insufficient decline in new HIV infections shows we have more work to do



CDC. Diagnoses of HIV Infection in the United States and Dependent Areas, 2021. HIV Surveillance Report 2023; 34.

You are the champions

Evidence-based underwriting for people with or at risk of HIV can:

- Expand your market
- Incentivize use of ART and PrEP, helping end the HIV epidemic
- Support your customers in living their best lives

Conclusions

- HIV can now be treated, rendered non-infectious, and prevented
- Today, PWH starting ART early will have essentially normal life expectancy
- PrEP works but stigma has led to policies that are not evidence-based
- **Modern underwriting should not be based on HIV status or PrEP use**

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Thank you!

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